WHAT IS CLAIMED IS:

1. A method for processing diversity signals, comprising:

receiving a first plurality of diversity signals at a plurality of antennas, the first plurality of diversity signals comprising communicated information, the plurality of antennas associated with a plurality of channel paths;

adjusting a phase of each diversity signal of at least a subset of the first plurality of diversity signals;

combining the first plurality of diversity signals to form a combined signal;

processing the combined signal to yield the communicated information;

determining a combined complex channel gain estimate of the first plurality of diversity signals from the combined signal;

calculating an individual complex channel gain estimate for each of the plurality of antennas from the combined complex channel gain estimate;

establishing a plurality of phase adjustments associated with the plurality of channel paths according to the plurality of individual complex channel gain estimates;

applying the plurality of phase adjustments to a second plurality of diversity signals, the second plurality of diversity signals comprising next communicated information; and

processing the second plurality of diversity signals to yield the next communicated information.

2. The method of Claim 1, wherein:

the first plurality of diversity signals has a number of time intervals; and

the second plurality of diversity signals has the same number of time intervals, the number of time intervals being greater than or equal to the number of the plurality of antennas.

3. The method of Claim 1, wherein processing the combined signal to yield the communicated information further comprises:

despreading a traffic channel embedded in the combined signal to form a plurality of finger signals, a finger signal corresponding to a multipath component of the combined signal;

weighting each finger signal to yield a plurality of weighted finger signals;

combining the plurality of weighted finger signals to yield a combined finger signal; and

decoding the combined finger signal to determine the communicated information.

4. The method of Claim 1, wherein determining the combined complex channel gain estimate of the first plurality of diversity signals from the combined signal further comprises:

despreading a pilot channel embedded in the combined signal to form a plurality of finger signals, a finger signal corresponding to a multipath component of the combined signal; and

determining the combined complex channel gain estimate from the plurality of finger signals.

5. The method of Claim 1, wherein calculating the individual complex channel gain estimate for each of the plurality of antennas from the combined complex channel gain estimate further comprises:

determining a covariance matrix for each channel path of the plurality of channel paths; and

calculating an individual complex channel gain estimate associated with each of the plurality of antennas according to covariance matrix minimum and mean square error (MMSE) criteria.

6. The method of Claim 1, wherein calculating the individual complex channel gain estimate for each of the plurality of antennas from the combined complex channel gain estimate further comprises assuming a complex channel to be constant over a duration of the first plurality of diversity signals.

7. The method of Claim 1, wherein a phase adjustment of the plurality of phase adjustments comprises a first phase adjustment and a second phase adjustment, the first phase adjustment based on an individual complex channel gain estimate, the second phase adjustment based on a signal-to-noise ratio.

8. The method of Claim 1, wherein:

each phase adjustment of the plurality of phase adjustments comprises a first phase adjustment and a second phase adjustment, each second phase adjustment having a magnitude and a sign; and

establishing the plurality of phase adjustments associated with the plurality of channel paths according to the plurality of individual complex channel gain estimates further comprises:

calculating the plurality of first phase adjustments;

determining the magnitudes of the plurality of second phase adjustments;

alternating the signs of the second phase adjustments for each time interval of a plurality of time intervals and for each channel path of the plurality of channel paths; and

adding the first phase adjustments and the second phase adjustments to yield the plurality of phase adjustments.

9. The method of Claim 1, wherein:

each phase adjustment of the plurality of phase adjustments comprises a first phase adjustment and a second phase adjustment, each second phase adjustment having a magnitude and a sign; and

establishing the plurality of phase adjustments associated with the plurality of channel paths according to the plurality of individual complex channel gain estimates further comprises:

calculating the plurality of first phase adjustments;

determining the magnitudes of the plurality of second phase adjustments;

changing the second phase adjustments for each time interval of a plurality of time intervals and for each channel path of a plurality of channel paths such that the following are satisfied:

for each time interval, the second phase adjustments for at least two channel paths are different; and

for each channel path, the second phase adjustments for at least two time intervals are different; and

adding the first phase adjustments and the second phase adjustments to yield the plurality of phase adjustments.

10. A system for processing diversity signals, comprising:

a vector modulator operable to receive a first plurality of diversity signals at a plurality of antennas, the first plurality of diversity signals comprising communicated information, the plurality of antennas associated with a plurality of channel paths; and

one or more processing devices coupled to the vector modulator an operable to:

adjust a phase of each diversity signal of at least a subset of the first plurality of diversity signals;

combine the first plurality of diversity signals to form a combined signal;

process the combined signal to yield the communicated information;

determine a combined complex channel gain estimate of the first plurality of diversity signals from the combined signal;

calculate an individual complex channel gain estimate for each of the plurality of antennas from the combined complex channel gain estimate; and

establish a plurality of phase adjustments associated with the plurality of channel paths according to the plurality of individual complex channel gain estimates;

the vector modulator further operable to apply the plurality of phase adjustments to a second plurality of diversity signals, the second plurality of diversity signals comprising next communicated information; and

the one or more processing devices further operable to process the second plurality of diversity signals to yield the next communicated information.

11. The system of Claim 10, wherein:

the first plurality of diversity signals has a number of time intervals; and

the second plurality of diversity signals has the same number of time intervals, the number of time intervals being greater than or equal to the number of the plurality of antennas.

12. The system of Claim 10, wherein the one or more processing devices are further operable to process the combined signal to yield the communicated information by:

despreading a traffic channel embedded in the combined signal to form a plurality of finger signals, a finger signal corresponding to a multipath component of the combined signal;

weighting each finger signal to yield a plurality of weighted finger signals;

combining the plurality of weighted finger signals to yield a combined finger signal; and

decoding the combined finger signal to determine the communicated information.

13. The system of Claim 10, wherein the one or more processing devices are further operable to determine the combined complex channel gain estimate of the first plurality of diversity signals from the combined signal by:

despreading a pilot channel embedded in the combined signal to form a plurality of finger signals, a finger signal corresponding to a multipath component of the combined signal; and

determining the combined complex channel gain estimate from the plurality of finger signals.

14. The system of Claim 10, wherein the one or more processing devices are further operable to calculate the individual complex channel gain estimate for each of the plurality of antennas from the combined complex channel gain estimate by:

determining a covariance matrix for each channel path of the plurality of channel paths; and

calculating an individual complex channel gain estimate associated with each of the plurality of antennas according to covariance matrix minimum and mean square error (MMSE) criteria.

15. The system of Claim 10, wherein the one or more processing devices are further operable to calculate the individual complex channel gain estimate for each of the plurality of antennas from the combined complex channel gain estimate by assuming a complex channel to be constant over a duration of the first plurality of diversity signals.

16. The system of Claim 10, wherein a phase adjustment of the plurality of phase adjustments comprises a first phase adjustment and a second phase adjustment, the first phase adjustment based on an individual complex channel gain estimate, the second phase adjustment based on a signal-to-noise ratio.

17. The system of Claim 10, wherein:

each phase adjustment of the plurality of phase adjustments comprises a first phase adjustment and a second phase adjustment, each second phase adjustment having a magnitude and a sign; and

wherein the one or more processing devices are further operable to establish the plurality of phase adjustments associated with the plurality of channel paths according to the plurality of individual complex channel gain estimates by:

calculating the plurality of first phase adjustments;

determining the magnitudes of the plurality of second phase adjustments;

alternating the signs of the second phase adjustments for each time interval of a plurality of time intervals and for each channel path of the plurality of channel paths; and

adding the first phase adjustments and the second phase adjustments to yield the plurality of phase adjustments.

18. The system of Claim 10, wherein:

each phase adjustment of the plurality of phase adjustments comprises a first phase adjustment and a second phase adjustment, each second phase adjustment having a magnitude and a sign; and

wherein the one or more processing devices are further operable to establish the plurality of phase adjustments associated with the plurality of channel paths according to the plurality of individual complex channel gain estimates by:

calculating the plurality of first phase adjustments;

determining the magnitudes of the plurality of second phase adjustments;

changing the second phase adjustments for each time interval of a plurality of time intervals and for each channel path of a plurality of channel paths such that the following are satisfied:

for each time interval, the second phase adjustments for at least two channel paths are different; and

for each channel path, the second phase adjustments for at least two time intervals are different; and

adding the first phase adjustments and the second phase adjustments to yield the plurality of phase adjustments.

19. Logic for processing diversity signals, the logic embodied in a medium and operable to:

receive a first plurality of diversity signals at a plurality of antennas, the first plurality of diversity signals comprising communicated information, the plurality of antennas associated with a plurality of channel paths;

adjust a phase of each diversity signal of at least a subset of the first plurality of diversity signals;

combine the first plurality of diversity signals to form a combined signal;

process the combined signal to yield the communicated information;

determine a combined complex channel gain estimate of the first plurality of diversity signals from the combined signal;

calculate an individual complex channel gain estimate for each of the plurality of antennas from the combined complex channel gain estimate;

establish a plurality of phase adjustments associated with the plurality of channel paths according to the plurality of individual complex channel gain estimates;

apply the plurality of phase adjustments to a second plurality of diversity signals, the second plurality of diversity signals comprising next communicated information; and

process the second plurality of diversity signals to yield the next communicated information.

20. The logic of Claim 19, wherein:

the first plurality of diversity signals has a number of time intervals; and

the second plurality of diversity signals has the same number of time intervals, the number of time intervals being greater than or equal to the number of the plurality of antennas.

21. The logic of Claim 19, further operable to process the combined signal to yield the communicated information by:

despreading a traffic channel embedded in the combined signal to form a plurality of finger signals, a finger signal corresponding to a multipath component of the combined signal;

weighting each finger signal to yield a plurality of weighted finger signals;

combining the plurality of weighted finger signals to yield a combined finger signal; and

decoding the combined finger signal to determine the communicated information.

22. The logic of Claim 19, further operable to determine the combined complex channel gain estimate of the first plurality of diversity signals from the combined signal by:

despreading a pilot channel embedded in the combined signal to form a plurality of finger signals, a finger signal corresponding to a multipath component of the combined signal; and

determining the combined complex channel gain estimate from the plurality of finger signals.

23. The logic of Claim 19, further operable to calculate the individual complex channel gain estimate for each of the plurality of antennas from the combined complex channel gain estimate by:

determining a covariance matrix for each channel path of the plurality of channel paths; and

calculating an individual complex channel gain estimate associated with each of the plurality of antennas according to covariance matrix minimum and mean square error (MMSE) criteria.

24. The logic of Claim 19, further operable to calculate the individual complex channel gain estimate for each of the plurality of antennas from the combined complex channel gain estimate by assuming a complex channel to be constant over a duration of the first plurality of diversity signals.

25. The logic of Claim 19, wherein a phase adjustment of the plurality of phase adjustments comprises a first phase adjustment and a second phase adjustment, the first phase adjustment based on an individual complex channel gain estimate, the second phase adjustment based on a signal-to-noise ratio.

26. The logic of Claim 19, wherein:

each phase adjustment of the plurality of phase adjustments comprises a first phase adjustment and a second phase adjustment, each second phase adjustment having a magnitude and a sign; and

the logic is further operable to establish the plurality of phase adjustments associated with the plurality of channel paths according to the plurality of individual complex channel gain estimates by:

calculating the plurality of first phase adjustments;

determining the magnitudes of the plurality of second phase adjustments;

alternating the signs of the second phase adjustments for each time interval of a plurality of time intervals and for each channel path of the plurality of channel paths; and

adding the first phase adjustments and the second phase adjustments to yield the plurality of phase adjustments.

27. The logic of Claim 19, wherein:

each phase adjustment of the plurality of phase adjustments comprises a first phase adjustment and a second phase adjustment, each second phase adjustment having a magnitude and a sign; and

the logic is further operable to establish the plurality of phase adjustments associated with the plurality of channel paths according to the plurality of individual complex channel gain estimates by:

calculating the plurality of first phase adjustments;

determining the magnitudes of the plurality of second phase adjustments;

changing the second phase adjustments for each time interval of a plurality of time intervals and for each channel path of a plurality of channel paths such that the following are satisfied:

for each time interval, the second phase adjustments for at least two channel paths are different; and

for each channel path, the second phase adjustments for at least two time intervals are different; and

adding the first phase adjustments and the second phase adjustments to yield the plurality of phase adjustments.

28. A system for processing diversity signals, comprising:

means for receiving a first plurality of diversity signals at a plurality of antennas, the first plurality of diversity signals comprising communicated information, the plurality of antennas associated with a plurality of channel paths;

means for adjusting a phase of each diversity signal of at least a subset of the first plurality of diversity signals;

means for combining the first plurality of diversity signals to form a combined signal;

means for processing the combined signal to yield the communicated information;

means for determining a combined complex channel gain estimate of the first plurality of diversity signals from the combined signal;

means for calculating an individual complex channel gain estimate for each of the plurality of antennas from the combined complex channel gain estimate;

means for establishing a plurality of phase adjustments associated with the plurality of channel paths according to the plurality of individual complex channel gain estimates;

means for applying the plurality of phase adjustments to a second plurality of diversity signals, the second plurality of diversity signals comprising next communicated information; and

means for processing the second plurality of diversity signals to yield the next communicated information.

29. A method for processing diversity signals, comprising:

receiving a first plurality of diversity signals at a plurality of antennas, the first plurality of diversity signals comprising communicated information, the plurality of antennas associated with a plurality of channel paths;

adjusting a phase of each diversity signal of at least a subset of the first plurality of diversity signals;

combining the first plurality of diversity signals to form a combined signal;

processing the combined signal to yield the communicated information, the combined signal processed to yield the communicated information by:

despreading a traffic channel embedded in the combined signal to form a plurality of finger signals, a finger signal corresponding to a multipath component of the combined signal;

weighting each finger signal to yield a plurality of weighted finger signals;

combining the plurality of weighted finger signals to yield a combined finger signal; and

decoding the combined finger signal to determine the communicated information;

determining a combined complex channel gain estimate of the first plurality of diversity signals from the combined signal, the combined complex channel gain estimate determined by:

despreading a pilot channel embedded in the combined signal to form the plurality of finger signals; and

determining the combined complex channel gain estimate from the plurality of finger signals;

calculating an individual complex channel gain estimate for each of the plurality of antennas from the combined complex channel gain estimate, the individual complex channel gain estimate calculated by:

assuming a complex channel to be constant over a duration of the first plurality of diversity signals;

determining a covariance matrix for each channel path of the plurality of channel paths; and

calculating an individual complex channel gain estimate associated with each of the plurality of antennas according to covariance matrix minimum and mean square error (MMSE) criteria;

establishing a plurality of phase adjustments associated with the plurality of channel paths according to the plurality of individual complex channel gain estimates, each phase adjustment of the plurality of phase adjustments comprising a first phase adjustment and a second phase adjustment, each second phase adjustment having a magnitude and a sign, the plurality of phase adjustments established by:

calculating the plurality of first phase adjustments;

determining the magnitudes of the plurality of second phase adjustments;

alternating the signs of the second phase adjustments for each time interval of a plurality of time intervals and for each channel path of the plurality of channel paths; and

adding the first phase adjustments and the second phase adjustments to yield the plurality of phase adjustments;

applying the plurality of phase adjustments to a second plurality of diversity signals, the second plurality of diversity signals comprising next communicated information; and

processing the second plurality of diversity signals to yield the next communicated information, the first plurality of diversity signals having a number of time intervals, the second plurality of diversity signals having the same number of time intervals, the number of time intervals being greater than or equal to the number of the plurality of antennas.